

Amendment under 37 C.F.R. §1.111  
Application No. 10/781,794  
Attorney Docket No. 042120

### **REMARKS**

Claims 1, 3-9 are pending. Claims 3-7 have been withdrawn from consideration. Claim 2 has been cancelled herein. Claim 1 has been amended herein to incorporate the subject matter of claim 2. Claims 8 and 9 have been added herein. Support for the new claims is found at Figures 4A and 4B and the disclosure at page 12, line 26 to page 13, line 26 of the present specification.

### **Applicants' Response to the Claim Rejections under 35 U.S.C. §103(a)**

Claims 1-2 stand rejected under 35 U.S.C. 103(a) as being unpatentable over **Murakami Noriko** JP Publication No. 09-116050A (hereinafter "**Murakami**") in view of **Chia et al.**, US Patent No. 6,081,997(hereinafter "**Chia**"). As noted above, applicants have amended claim 1 to incorporate the subject matter of claim 2. Applicants respectfully submit that the combination of **Murakami** and **Chia** does not teach nor suggest each and every limitation of the claimed invention. Applicants further respectfully submit that the combination of **Murakami** and **Chia** does not result in the present invention pursuant to amended claim 1.

**Murakami** does not teach a vent edge portion of the substrate with a thickness smaller than the thickness of the remainder of the substrate. The Office Action cites to **Murakami** for its disclosure of a substrate 21 with stress relaxation sections 27, because the stress relaxation sections 27 are positioned near the end of the substrate 21 in Figure 2 of the reference. However,

this relaxation section does not correspond to a vent edge portion of the substrate as set forth in amended claim 1.

**Murakami** (JP 09-116050) illustrates in figure 2 a resin-sealed semiconductor device in which a stress buffer material 27 of silicone or the like is applied to the recess 21a of the substrate 21 on the side of the semiconductor chip 22. This stress buffer material 27 exists between the substrate 21 and the sealing resin 24. The objective of **Murakami** device is to reduce the stress arising between the substrate and the resin with the use of a stress buffer material 27 which is different in the coefficient of linear expansion from a material of the substrate.

**Murakami** does not teach or suggest a vent-end edge portion of the substrate with a thickness smaller than the thickness of the other portions of the substrate, as in the applicant's claimed invention. The manufacturing method pursuant to amended claim 1 is characterized in that a rigid substrate 1 is provided so that at least a vent-end edge portion 4 of the substrate corresponding to a vent end of the encapsulation mold has a thickness smaller than a thickness of other portions of the substrate. A void 7 of the rigid substrate 1 is formed between the electrode support surface of the substrate and the lower mold at the vent-end edge portion 4. See FIG 4A and page 12, lines 30-35 of the specification. The stress buffer material 27 of **Murakami** is not equivalent to the vent-end edge portion of amended claim 1.

Further, the combination of **Murakami** and **Chia** does not result in the manufacturing method of amended claim 1. **Chia** teaches the use of encapsulation molds 20 and 26 with air

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vents 30a-30b in a manufacturing method of a semiconductor device wherein a resin material is injected into the cavity of the molds through an opening 18 of the substrate 14. The resin does not flow through the air vents 30a-30b. The opening 18 is located in the center of the substrate 14 and the substrate 14 is provided with a uniform thickness.

As noted above, the manufacturing method pursuant to amended claim 1 is characterized in that a rigid substrate 1 is provided so that at least a vent-end edge portion 4 of the substrate corresponding to a vent end of the encapsulation mold has a thickness smaller than a thickness of other portions of the substrate. This manufacturing method of amended claim 1 results in the efficient prevention of the deformation of the substrate after the resin encapsulation and the deformation of the semiconductor elements at the time of the resin encapsulation. The substrate of **Murakami** would not form a vent-edge corresponding to a vent end 30a and 30b of the encapsulation mold of **Chia** with a thickness smaller than other portions of the substrate. Hence, even if one of skill in the art were to combine **Murakami** and **Chia** the presently claimed method would not be performed.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Michael J. Caridi", is written over a horizontal line.

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